

# FY05-FY07 Project

## Main Goals:

Investigate coupled hydraulic, geochemical, and microbial conditions, and to determine the critical biogeochemical parameters necessary to maximize the extent of Cr(VI) bioreduction and minimize Cr(III) reoxidation in ground water.

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## Technical Approaches:

1. Field investigations of Cr(VI) bioreduction and its transformation into insoluble species of Cr(III) in groundwater
  - Drilling and coring
  - Pumping
  - Monitoring - sampling and geophysics
2. Bench-scale studies, using columns of undisturbed sediments to determine diffusion and kinetic parameters of Cr(VI) bioreduction and potential of Cr(III) reoxidation

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## Technical Approaches:

3. Development of a multiphase, multicomponent 3D reactive transport model and a code, TOUGHREACT-BIO, to predict coupled biogeochemical-hydrological processes associated with bioremediation
4. Analytical analyses
  - Microbial
  - Isotopic
  - Metals and common ions